EFFECTIVENESS OF LAUGHTER YOGA IN TERMS OF SELECTED PSYCHOLOGICAL AND PHYSIOLOGICAL VARIABLES OF ORPHAN SPECIAL CHILDREN OF DELHI

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Certificate

I hereby declare that the synopsis ***EFFECTIVENESS OF LAUGHTER YOGA IN TERMS OF SELECTED PSYCHOLOGICAL AND PHYSIOLOGICAL VARIABLES OF ORPHAN SPECIAL CHILDREN OF DELHI***, being submitted in partial fulfilment of the requirement for the degree of Doctor of Philosophy in Yoga under Department of Yogic Sciences, LNIPE, Gwalior, during the academic year 2021-2022. It is a Bonafide record of original work carried out under the supervision of Dr. Moradhvaj Singh and under the Co-supervision of Dr. Vijay Singh Gussain, and has not been submitted in full or part to any other university or institute for a degree or diploma.

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ABSTRACT

Laughter, a universal human expression rooted in rhythmic respiratory contractions, plays a profound role in enhancing social interaction and emotional communication. Recent studies have highlighted the therapeutic potential of laughter, particularly in the form of Laughter Yoga- a structured practice combining voluntary laughter exercises with yogic breathing techniques. This study explores the effectiveness of Laughter Yoga on selected Psychological Variables- Depression, Anxiety, Stress, Aggression, Mindfulness and Physiological Variables- Resting heart rate, Respiratory rate, Forced vital capacity, Systolic Blood Pressure and Diastolic Blood Pressure among orphan special children in Delhi. These children, often marginalised and vulnerable, face numerous physical, mental, and emotional challenges. Drawing from both classical yogic philosophy and modern complementary medicine, the research involved 30 orphaned special children aged 8–16 with mild visual, hearing, and locomotor disabilities. Over 12 weeks, the experimental group will receive regular Laughter Yoga sessions, while pre- and post-test evaluations will be conducted using validated psychological and physiological measurement tools. Data analysis will involve descriptive statistics, Shapiro-Wilk test for normality, dependent t-test, and Two-way Mixed Design Repeated Measures ANOVA to assess the impact of Laughter Yoga on psychological and physiological variables among orphan special children, with the significance level set at 0.05. This study contributes to the growing body of evidence supporting yoga-based practices for promoting holistic health, particularly in underserved and special-needs populations.

Keywords: *Laughter Yoga, Children with Disabilities, Stress, Locomotor Impairment, Hearing Impairment, Visual Impairment.*

Language: *English*

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Chapter-I
INTRODUCTION

‘HE WHO LAUGHS, LASTS’

– Mary Pettibone Poole.

Laughter is a pleasure-inducing physical emotion characterized by rhythmical, often loud contractions of the diaphragms and other respiratory organs, Laughter is a brain-controlled component of human interaction that helps people explain their goals in social situations and gives their conversations a sense of context. "Laughter is a mechanism everyone has; laughter is part of universal human vocabulary. There are thousands of languages, hundreds of thousands of dialects, but everyone speaks laughter in pretty much the same way."(Gervais & Wilson, 2005).

The word “laugh” comes from old English word hliehhan. Asiding from its variation, laughter is a series composed of short and repetitive syllables that came across like “ha- ha” “ho-ho” or “he- he” in English.

Laughter and Health: - Researchers at the university of Maryland Medical Centre were the first to portrait the laughter and blood vessels’ healthy function link in 2005. They stated the fact that it causes increased blood flow by dilating the endothelium i.e., the inner lining of blood vessels. What could be better or more cost-effective than using laughter to mend shattered hearts and envision a fresh beginning? Thus, with the use of Laughter Yoga, this study has the potential to teach, heal, and prevent the negative effects of stress and pressure among individuals who are unheard.

As a method for releasing psychic energy, Freud suggested laughing. According to him, suppressed feelings are released through jokes, and this process of relaxing muscle tension leads to the development of lust. (Freud, 1960).

Numerous strategies have been indicated for improvement of general health components. Among these strategies, complementary treatments have been considered more by researchers in recent years due to their public acceptance, low costs, and fewer complications (Sturt, 2009). Nowadays, modern medicine has clearly been directed toward complementary medicine, so the WHO named the year 2005 as the year of complementary and alternative medicine (Moeini, 2011).

These methods include stress management (Yazdani, 2010), physical exercises, relaxation and psychological counselling, education of social skills (Rice, 2009), Yoga (Afonso, 2011), and laughter therapy (Ko, 2011). Some of the strategies to promote and develop individuals' general health include laughter, humour therapy, and laughter Yoga (Kataria, 2011). Laughter has a valuable and specific position in psychology which can help in maintaining mental balance in humans and contributes to their mental health (Hajian, 2011).

Yoga, as a priceless heritage from India, is an ancient physical and spiritual discipline that reflects the union of mind and body, thinking and action. It is a branch of philosophy that dates back to 5,000 years ago and which is highly beneficial to health and well-being. Yoga is mentioned in the Vedas, Puranas, Upanishads, Gita, Patanjali's Sutras, and other sacred texts. Yoga comes in a variety of forms and practices. It integrates Asanas, breathing exercises, meditation Kriyas, and other practices that relax and unify the body and mind in this research. Yoga is a cost-effective and safe alternative medicine practice that can improve the quality of life for orphan children. Yoga is a method for achieving physical and mental well-being. It brings the function of the muscle and the intellect up to date. It's a road that can take us to better health. (Batch, 1987).

Laughter Yoga is a serious exercise regimen, not something to chuckle about. It's a somewhat unusual sort of workout that combines artificial laughter with Yogi breathing, thus the name. It's worth noting that laughing is unconditional, meaning it doesn't depend on external elements like jokes, humour, or hilarity. (Laughter Yoga International, 2019). Laughter Yoga is a new type of yoga that works on the body, mind, heart, and soul. Laughter yoga is based on the science of unintentional laughter. We begin by laughing as a physical activity, which then evolves into genuine contagious laughter. Stretching, chanting, clapping, and childlike playfulness with body movement are all used in laughter yoga sessions.

ORPHAN CHILDREN: - In biological terms we can call a child, a minor or human being between the stages of birth and puberty. Children generally have fewer rights and responsibilities than Adults. They are classed as unable to make serious decisions. Human being is an integration of body and mind. Both the components through their combinations make human being successful.

ORPHAN CHILDREN AND YOGA: - Orphan children suffer greatly from much physical, physiological and mental disorders leading to the bad effect on their over-all adjustment, emotional stability autonomy, security-insecurity, intelligence and self-concept. Yogic practices are providing the best method to achieve good mental health. Thus, keeping in view, the benefits of yogic practices, an attempt has made to investigate scientifically the effect yogic practices on mental health of orphan children. In this study the investigator has selected the 60 (Boys and Girls) orphan children from Guru Nanak Anath Ashram (Orphan Home) in Jalandhar Punjab India. After the pre-test subjects were divided into two groups i.e., Yogic group (experimental) and Control Group (non-experimental). Mental health battery by Singh and Gupta was applied to collect the data. Training of yoga practices was given to the Yogic group for eight weeks. No training was imparted to the control group. The results of the investigation showed a significant effect of yogic practices on the different parameters of mental health i.e., overall adjustment, emotional stability, autonomy, security-insecurity, intelligence and self-concept (Kenari, 2014).

In this study, only visually-impaired, hearing-impaired and those with locomotor disability types of special children will be counted as participants.

SPECIAL CHILDREN AND YOGA: -Promotion and provision of individuals' health is one of the bases for development in societies. Students' mental health is very important in each society. One of the new strategies in this regard is laughter Yoga. A study was conducted with an aim to define the effect of laughter Yoga on general health among nursing students. The findings showed that laughter Yoga had a positive effect on students' general health and improved the signs of physical and sleep disorders, lowered anxiety and depression, and promoted their social function. Therefore, laughter Yoga can be used as one of the effective strategies on students' general health (Yazdani,2014).

YOGA AND RESEARCH: -Yoga for children is a relaxation technique that has been found to reduce stress and tension, dissipate excess energy, relieve tiredness, lengthen attention span, improve physical health, sharpen concentration, enhance mental clarity, and cultivate better interpersonal relationships (Peck et al., 2005; Seiler and Renshaw, 1978; Telles et al., 1993). Yoga is a complete science, which makes the body healthy and provides mental peace leading to spirituality. It is very useful for the disabled as they can get relief from physical ailments (Ijbarathi, 2012), improves IQ, concentration, attention span, psycho-motor coordination (Uma et

al., 1989). This findings of by earlier research reports that yoga is one of the potential alternative medicine therapies for diagnose and cure problems of children.

STATEMENT OF THE PROBLEM

The statement of the problem will be stated as **"Effectiveness of laughter Yoga in terms of Selected Psychological and Physiological Variables of Orphan Special Children of Delhi"** since special children come under that category of society which needs extra attention and they are the ones who need to be considered among important topics to be researched about.

OBJECTIVES OF THE STUDY

The following the objectives of the study are:

1. To assess the level of Psychological Variables (Depression, Anxiety, Stress, Aggression and Mindfulness) of orphan special children of Delhi.
2. To assess the level of Physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP) of orphan special children of Delhi.
3. To compare mean scores of Psychological Variables (Depression, Anxiety, Stress, Aggression and Mindfulness) at the Pre-test and Post-test Stages of the Laughter Group.
4. To compare mean scores of Physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP) at the Pre-test and Post-test Stages of the Laughter Group.
5. To study the trend effect of Laughter Yoga on Psychological Variables (Depression, Anxiety, Stress, Aggression and Mindfulness) of orphan special children (Girls and Boys) of Delhi.
6. To study the trend effect of Laughter Yoga on Physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP) of orphan special children (Girls and Boys) of Delhi.
7. To study the interaction effect between orphan special Gender (Girls and Boys) and different duration (Zero weeks, Three Weeks, Six Weeks, Nine Weeks and Twelve weeks) of the Laughter Yoga Program on Psychological Variables (Depression, Anxiety, Stress, Aggression and Mindfulness) and Physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP) of orphan special children of Delhi.

DELIMITATIONS

1) This study will be delimited to 30 subjects (Boys and Girls).
2) The study will be delimited to the subjects who are orphan special children.
3) The study will be delimited to the subjects who are special children, categorised as mildly visually impaired, hearing disabled and physically challenged, respectively.
4) The study will be further delimited to the age range from 8 to 16 years.
5) The study will be delimited to the 12-week training of Laughter Yoga.
6) The study will be delimited to the following Psychological Variables (stress, anxiety, depression, aggression and mindfulness), and Physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP) of orphan special children of Delhi.

HYPOTHESES OF THE STUDY

1. There is no significant difference between mean scores of Psychological Variables (Depression, Anxiety, Stress, Aggression and Mindfulness) and Physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP) at the Pre-test and Post-test stages of the Laughter group of orphan special children of Delhi.
2. There is no significant difference between mean scores of Psychological Variables (Depression, Anxiety, Stress, Aggression and Mindfulness) and Physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP) of orphan special children of Delhi whether all the Five-time period of testing during laughter Yoga intervention program.
3. There is no significant difference between mean scores of Psychological Variables (Depression, Anxiety, Stress, Aggression and Mindfulness) and Physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP) of boys and girls orphan special children of Delhi.
4. There is no significant interaction between Gender (Boys and Girls) and different durations (Zero weeks, Three Weeks, Six Weeks, Nine Weeks and Twelve weeks) of the Laughter Yoga Program of Psychological Variables (Depression, Anxiety, Stress,

Aggression and Mindfulness) and Physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP).

Definition and explanation of terms

- **Special Children:** -A child who is substantially above or below the average in some significant respect.
- **Psychological Variables:** - Psychosocial variables therefore encompass a large range of factors relating to an individual's psychological state and social environment and potentially have either positive and negative consequences for health and behavioural outcomes.
- **Physiological Variables:** -Temporal series representing the evolution of a physical magnitude related with the patient's physio pathological state.

SIGNIFICANCE OF THE STUDY

The study may contribute in the following ways:

- The result of the study will provide guidelines for the practice schedule of Laughter yoga for special children.
- The result of the study will provide knowledge about the methods of laughter yoga practice over a specified period for the quick recovery of children.
- The result of the study will help the caretakers to select better method of maintaining selected psychological and physiological problems of orphan children.
- The study may add new knowledge in the field of research of Yogic Sciences in general.
- This study adds to existing research by calculating the ideal session period necessary to ensure children can focus and be involved in the training.

CHAPTER- II

REVIEW OF RELATED LITERATURE

The research scholar has gone through the literature, and the relevant studies from various sources are enumerated below:

Reviews related to Yoga and Laughter Yoga

(Purohit et al., 2016) evaluated how a Yoga programme influenced the physical fitness of orphaned teenagers. This study included 72 orphaned teenagers who appeared to be in good health. Yoga Group (40) and Wait Control Group (32) were formed and trained for three months at 90 minutes per day, four days per week. The results showed that a 3-month Yoga programme improved the physical fitness of young orphan adolescents.

(Hagen & Nayar, 2014) discussed some of the pressures that children face in modern society, such as increased demands and children's increased media use. They've said that yoga is important for managing stress, consciousness, and healthy growth in children and adolescents. As previously said, research into the impact of yoga on the mental health and well-being of children and young people is still in its infancy. While presenting yoga to children they believed it is critical to remember what Shakta Khalsa, a pioneer in teaching yoga to children, says: children's yoga is not a condensed form of yoga for adults; it is a distinct practice.

(Yoshikawa et al., 2019) investigated the benefits of laughter therapy on psycho-physiological functionality among senior adults who visited an elderly day care facility on a routine basis associated with impaired ADL or cognitive dysfunction in Japan. From the day care facility, 17 participants aged 60 and up were selected. The intervention consists of professional comedians performing stand-up comedy once a week for 30 minutes for four weeks as laughter therapy. Physiological measures included blood pressure, respiratory rate, NK (natural killer) activity, plasma serotonin, and salivary chromogranin concentrations were assessed, as well as psychological parameters such as the geriatric depression scale, QOL scale, and vitality scale. After providing the treatment for 4 weeks, comparison was made tween before and after treatment there was a certain reduction found in systolic BP 16 and HR. After repeated laughter treatment, the concentration of plasma serotonin increased considerably. The salivary CgA concentration was found to be much lower just after the previous stand-up comedy show than it was prior to the show. Although there was no

significant difference in NK activity before and after laughter therapy, the rise in serotonin concentration caused by the treatment was positively connected with the increase in NK activity. In this study, questionnaire surveys utilizing the SF8 and GDS15 revealed that laughter therapy enhanced psychological function noticeably. The whole SF8 score was greatly diminished, particularly for "Bodily Pain," and "Social Function" strengthened. Additionally, laughter therapy dramatically reduced the GDS15 score. Laughter therapy dramatically raised the Total Vitality Index score, particularly in terms of drive for recuperation.

(Buchowski et al., 2007) measured the level of energy expenditure (EE) during laughter production. For this study, 31 men and 63 women between the ages of 18 and 34 were recruited. Their goal was to score their emotional responses to various film scenes while also evaluating their resting EE and HR. The sample size was established using data from pilot studies that showed a 0.14 kcal/min difference in energy consumption between resting and laughing. A general linear model was used to analyse the data statistically. When participants watched film scenes designed to elicit laughter, there was a significant rise in EE and HR when compared to the rest time.

Reviews Related to Special Children.

(Wallén et al., 2009)The high frequency of cardio-metabolic risk factors amongst children having intellectual disabilities was examined. Individuals with intellectual disabilities (ID) (n = 66) and non-intellectual disabilities (non-ID) (n = 56) studied in both experimental (non-ID-e) and theoretical (non-ID-t) settings. Anthropometric data, BP, body composition, calorie restriction, fasting-glucose, fasting-lipids, and cardio-vascular fitness were all taken into account. Participants with ID had a greater percent of overall fat mass, wider waist circumferences (WCs), decreased amounts of fat-free mass (FFM), lesser bone mineral density (BMD), greater insulin and homeostasis model assessment of insulin resistance (HOMA) levels, and relatively poor cardio-vascular fitness than those without ID. In comparison to the ID group and the non-ID-p group in between, the non-ID-t group had the healthier values. In this young group with intellectual disability, the frequency of cardiometabolic risk factors and poor cardio-vascular fitness been found to be significantly higher. It is necessary to take steps to improve the health messages sent to children and young adults with intellectual disabilities.

Chapter- III

PROCEDURE

This chapter covers the procedure for selecting subjects and variables, as well as the tools used, the data collection procedure, and the statistical technique used to analyse the results.

SELECTION OF SUBJECTS

30 Orphan special Children (aged between 8-16 years) will be randomly selected from an orphanage. The subjects included in one group only, which will be providing the treatment. Special Children include: -

Visually Impaired

Hearing Impaired

Locomotor

SELECTION OF VARIABLES

PSYCHOLOGICAL VARIABLES

- Depression
- Anxiety
- Stress
- Aggression
- Mindfulness

PHYSIOLOGICAL VARIABLES

- Resting Heart Rate
- Respiratory Rate
- Forced Vital Capacity
- Systolic Blood Pressure
- Diastolic Blood Pressure

DESCRIPTION AND ADMINISTRATION OF TEST

CRITERION MEASURES

A) Psychological Variables

Depression Anxiety Stress Scales - Youth Version (DASS-Y)

The Depression Anxiety Stress Scales - Youth Version (DASS-Y) was developed by Marianna Szabo and Peter F. Lovibond. They extended the original DASS to create a version suitable for children and adolescents aged 7-18 years. It measures the negative emotional states of depression, anxiety, and stress, making it suitable for assessing psychological distress in young individuals. The DASS-Y consists of items tailored to be age-appropriate and easy for children to understand and respond to, ensuring reliable and accurate measurement of their mental health.

Reactive-Proactive Aggression Questionnaire

The Reactive-Proactive Aggression Questionnaire (RPQ) was developed by Adrian Raine, Kenneth Dodge, Rolf Loeber, Lisa Gatzke-Kopp, Don Lynam, Chandra Reynolds, Magda Stouthamer-Loeber, and Jianghong Liu in 2006. It is designed to measure two types of aggression—reactive and proactive—in individuals. The RPQ consists of items that describe behaviors associated with these two forms of aggression. This questionnaire is particularly useful for children and adolescents, typically aged 8 to 18 years, as it helps differentiate between reactive and proactive aggression in youth.

The Child and Adolescent Mindfulness Measure (CAMM) - Karen A. Greco, Mark P. Baer, and Susan B. Smith. (2011)

The Child and Adolescent Mindfulness Measure (CAMM) is a self-report tool for assessing mindfulness in children and adolescents. It evaluates attention, awareness, and non-judgmental acceptance of thoughts and emotions in daily activities. Useful for research and clinical purposes, the CAMM helps educators, psychologists, and parents cultivate mindfulness, and monitor the effectiveness of interventions aimed at improving emotional regulation, well-being, and mental health in youth.

B) Physiological Variables

1) **Resting Heart Rate** – Heart Rate will be manually measured with the help of a Stethoscope.
2) **Respiratory Rate** – Respiratory Rate will be measured manually.

   Procedure Here's how:

   Count the number of times your Chest/abdomen rises over one minute is your Respiratory rate.
3) **Forced Vital Capacity** – Forced Vital Capacity will be measured with the help of the MIR Smart One Spirometer. The Mir Smartone Spirometer is a portable, handheld device widely used to measure Forced Vital Capacity (FVC), a key pulmonary function parameter. FVC represents the volume of air an individual can forcefully exhale after taking a deep breath. It is typically used for measuring pulmonary function in children and adults aged 5 years and older.
4) **Systolic Blood Pressure** - The Dr. Morepen BP-02 Blood Pressure Monitor is used to measure the Systolic Blood Pressure.
5) **Diastolic Blood Pressure** - The Dr. Morepen BP-02 Blood Pressure Monitor is used to measure the Diastolic Blood Pressure.

COLLECTION OF DATA

The data of orphan special children will be collected repeatedly, i.e., 5 times in every third week, to record the final performance of the test.

EXPERIMENTAL DESIGN

Repeated measures and Pre-test and Post-test randomised group design will be employed in this study. Two groups will be made up of a total of 30 subjects, having 15 girls and 15 boys.

TREATMENT PROCEDURE

The Experimental Groups (both groups) will be given treatment 5 days a week i.e., on Monday to Friday, early in the morning. The duration of the practice will be thirty minutes, which might

increase with time throughout twelve weeks. Subjects will sit in any comfortable position. First, they will close their eyes and relax their whole body, and then the treatment begins.

SCHEDULE OF LAUGHTER YOGA PRACTICE PROGRAM (12 Weeks)

Stepwise tabular representation of the intervention.

Steps	Name of Practice	Explanation
1	Warm-Up	In order to avoid any injuries that would otherwise arise from doing the activities and to make them focused/ready for the activities, children were instructed to warm up beforehand by Neck rotations, Shoulder rotations, Back twisting, Ankle rotations.
2	Laughter Activities	
		Greetings Laughter, Milkshake Laughter, Electric Shock Laughter, Imagery Flower Laughter, Appreciation Laughter, Lion Laughter, Electric Shock Laughter, Blow Candle Laughter, Forgiveness/ Apologise Laughter, Cell-Phone Laughter, Bike/Car Key laughter, Belly laughter, Copycat Laughter, Pencil Challenge Laughter.
3	Laughter Meditation	The subjects will be instructed to lie down quietly, close their eyes if they can, and merely pay attention to their breathing once they have finished laughing.
4	Relaxation	The subjects will be asked to sit keeping their eyes closed, and do inhalation from the mouth and exhalation via nose while producing the humming sound, i.e., alike Bhramari Pranayama.

STATISTICAL TECHNIQUE

1. To test the normality of the data, the **Shapiro-Wilk test will be used.**
2. To assess the level of Psychological Variables (Depression, Anxiety, Stress, Aggression and Mindfulness) and physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP) of orphan special children of Delhi, **Descriptive Statistics will be used.**
3. To compare mean scores of Psychological Variables (Depression, Anxiety, Stress, Aggression and Mindfulness) and physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP) of orphan special children of Delhi at Pre-test and Post-test Stages of Laughter Group, a **Dependent T-test will be used.**
4. **Two-way Mixed Design Repeated Measures ANOVA (within subjects and between subjects) will be used** to study the trend effect of Laughter Yoga on Psychological and physiological variables.
5. To study the interaction effect between orphan special Gender (Girls and Boys) and at different duration (Zero weeks, Three Weeks, Six Weeks, Nine Weeks and Twelve weeks) of the Laughter Yoga Program on Psychological Variables (Depression, Anxiety, Stress, Aggression and Mindfulness) and physiological Variables (Resting Heart rate, Respiratory Rate, Forced Vital capacity, SBP, DBP)of orphan special children of Delhi, **Two-way Mixed Design Repeated measures ANOVA (within subjects and between subjects) will be used.**
6. The level of significance will be set as **0.05.**

EXPECTED OUTCOMES

1. It is expected that **Laughter Yoga intervention will lead to a significant improvement** in the psychological variables (reduced levels of depression, anxiety, stress, and aggression, with increased mindfulness) and physiological variables (improved resting heart rate, respiratory rate, forced vital capacity, SBP, and DBP) among orphan special children of Delhi from pre-test to post-test stages.
2. Over the **five time points of assessment**, it is anticipated that a **progressive trend of improvement** will be observed in both psychological and physiological variables due to the continued practice of Laughter Yoga.

3. The study expects that **both boys and girls** will show **positive changes** in psychological and physiological health outcomes, reflecting the universal effectiveness of Laughter Yoga regardless of gender.
4. A **significant interaction effect** between gender and duration is expected, indicating that the **benefits of Laughter Yoga may vary slightly** based on gender and the length of participation, providing insights for customized program duration.

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